CLAIMS

We Claim:

1. A porous substrate comprising: a support; and a porous region on a surface of said support, the porous region being of primarily inorganic material and having a surface upon which a number of probe molecules can be immobilized, the porous region having a tint and exhibits a reduced level of auto-fluorescence of at least about 15% relative to a comparable non-tinted porous substrate surface.

2. The porous substrate according to claim 1, wherein said porous region having a tint that reduces relative auto-fluorescence levels by at least about 20-25% over said non-tinted porous substrate surface.

3. The porous substrate according to claim 2, wherein said porous region having a tint that reduces relative auto-fluorescence levels by at least about 50% over said non-tinted porous substrate surface.

4. The porous substrate according to claim 1, wherein said porous region exhibits a reduced relative auto-fluorescence level in RFU of at least an order of magnitude over said non-tinted porous substrate surface.

5. The porous substrate according to claim 1, wherein said reduction in auto-fluorescence is over a wavelength range from about 400 nm to about 720 nm.

6. The porous substrate according to claim 5, wherein said reduction in auto-fluorescence is over a wavelength range from about 420 nm to about 700 nm.

7. The porous substrate according to claim 1, wherein said tinted porous region has a colorant component including a transition metal ion.

8. The porous substrate according to claim 1, wherein said tinted porous region has a colorant component incorporated in a composition in weight percent consisting essentially of:

Oxide	wt. %
SiO_2	53-67
Al_2O_3	3-10
B_2O_3	12-24
K_2O	0-5
MgO	0-2
CaO	0.5-3
SrO	0-3
BaO	2-7
Sb_2O_3	0-2

and at least one of the following either individually or in combination

Co_3O_4	0.1-9
NiO	0.1-10
R_xO_y	0-10

wherein R is a transition metal, and x and y are each ≥ 0.

9. The porous substrate according to claim 8, wherein said R is selected from the group consisting of Fe, V, and Cu.

10. The porous substrate according to claim 1, wherein said porous region has a composition consisting essentially of:

Oxide	wt. %
SiO_2	55-65
Al_2O_3	4-9
B_2O_3	14-21
K_2O	1-5
MgO	0.1-2
CaO	1-2.5
SrO	0.5-1.75
BaO	3-5
Sb_2O_3	0-2

and at least one of the following, either individually or in combination,

Co_3O_4	0.1-8
NiO	0.1-10
R_xO_y	0-10

wherein R is a transition metal selected from the group consisting of Fe, V, and Cu, and x and y are each ≥ 0.

11. The porous substrate according to claim 8, wherein said glass composition is chemically and mechanically durable, and has a coefficient of thermal expansion (CTE) of between about 35-44 x 10^{-7}/°C.

12. The porous substrate according to claim 11, wherein said glass composition has a CTE of about 38-40 x 10^{-7}/°C.

13. The porous substrate according to claim 1, wherein before a GAPS-coating process, said tinted region has an average auto-fluorescence background for Cy3 and Cy5 channels of up to about 50% RFU of said un-tinted porous substrate.

14. The porous substrate according to claim 1, wherein a number of biological or chemical probes are attached at defined locations on or within said tinted porous layer.

15. The porous substrate according to claim 13, wherein said defined locations of probes assume a microarray format of at least one microspot per cm^2.

16. The porous substrate according to claim 13, wherein said defined locations of probes assume a microarray format of at least 10 microspots per cm^2.

17. The porous substrate according to claim 1, wherein said probe molecules include at least one kind of species selected from the following: oligonucleotides, nucleotides, nucleosides, DNA, RNA, peptide nucleic acid (PNA), peptides, polypeptides, protein domains, proteins, fusion proteins, antibodies, protein-membranes, G-coupled protein receptors, gangliosides, lipids, lipid membranes, cells or cell membranes, cell-lysate, or protein-small molecule ligands.

18. A tool for performing biological or chemical assays, the tool comprises a non-porous support; and a porous region on a surface of said support, the porous region being of primarily inorganic material and having a surface upon which a number of probe molecules may be immobilized, the porous region having a tint and exhibits a reduced level of auto-fluorescence of at least about 15% relative to a comparable non-tinted porous substrate surface.

19. The tool according to claim 18, wherein said porous region having a tint that reduces relative auto-fluorescence levels by at least about 20-25% over said non-tinted porous substrate surface.

20. The tool according to claim 18, wherein said tinted porous region has a colorant component including a transition metal ion.

21. The tool according to claim 18, wherein said tinted porous region has a colorant component incorporated in a composition in weight percent consisting essentially of:

Oxide	wt. %
SiO_2	53-67
Al_2O_3	3-10
B_2O_3	12-24
K_2O	0-5
MgO	0-2
CaO	0.5-3
SrO	0-3
BaO	2-7
Sb_2O_3	0-2

and at least one of the following either individually or in combination

Co_3O_4	0.1-9
NiO	0.1-10
R_xO_y	0-10

wherein R is a transition metal, and x and y are each ≥ 0.

22. The tool according to claim 21, wherein said R is selected from the group consisting of Fe, V, and Cu.

23. The tool according to claim 18, wherein said probe molecules are biological or chemical molecules, including at least one kind of the following: oligonucleotides, nucleotides, nucleosides, DNA, RNA, peptide nucleic acid (PNA), peptides, polypeptides, protein domains, proteins, fusion proteins, antibodies, gangliosides, membrane proteins, lipids, lipid membranes, cellular membranes, cell lysates, oligosaccharides, or polysaccharides, or lectins.